Learning to See: Developing the Perception of an EXPERT Teacher

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Unless you understand what you see,
your class might just as well be invisible.

As renowned educational psychologist David Berliner (1994) noted, the development of acute perceptual capacities is a primary characteristic of expert teachers. It only makes sense: the better you become at interpreting the significance of what you see, the better the information available to you upon which to make sound decisions in the classroom. Expert teachers see the same things you and I see. The difference is they see them differently (Carter, Cushing, Sabers, Stein, & Berliner, 1988; Livingston & Borko, 1989). Experts are able to observe a learning environment and discern critical cues that provide insight for informed and intuitive decisions (Woorons, 2001). Teachers with less expertise see the same cues, but simply fail to recognize their significance for teaching and learning.

The good news is that no one is born an expert. Expertise is developed and nurtured from years of experience, increased knowledge, and deliberate attempts to improve one's performance (Ericsson & Charness, 1994). Ericsson, Krampe, and Tesch-Roemer (1993) termed the practice that experts use to improve performance "deliberate practice." Deliberate practice consists of effortful activities based on the performer's current knowledge and skill level and designed to optimize performance on a single, selected skill. These activities are practiced repeatedly and correctly, with the performer receiving immediate informative feedback and knowledge of performance results. According to Ericsson (2005), research consistently indicates that differences in levels of expertise are directly attributable to the amount of deliberate practice. The skills of an expert teacher can, therefore, be developed by anyone who has the knowledge of what makes a great teacher and who makes deliberate attempts to continually and appropriately practice the skills of expert teaching. And one of the skills of an expert teacher is perception—the skill of *seeing*.

This article identifies the perceptual skills of expert teachers and offers suggestions for how any teacher can learn to see like an expert. Being able to read the critical cues in a learning environment allows teachers to identify present problems, anticipate potential problems, link immediate problems with previously successful solutions, and make exceptional in-class decisions (Owens, 2006). There are reasons why expert teachers achieve consistently superior results in their classrooms, and one of those reasons is their exceptional perceptual ability.

Through the Eyes of an Expert

Four features distinguish how expert teachers see. They (1) focus on events relevant to student performance and learning, (2) make inferences from observations, (3) pay attention to atypical occurrences, and (4) observe with a critical eye (Woorons, 2001). These traits are further explained below.

Focus on the Relevant. A primary difference between experts and novices resides in experts' targeted focus on events and information relevant to their decisions as teachers. Rather than being casual observers, experts monitor the instructional environment

with a keen eye on the students' technique and learning progress. Events influencing instruction and class management also cause blips on the experts' perceptual radar screen (Owens, 2006).

For the most part, while novices observe the same series of events, they do not realize the significance of what they are seeing, and are thus unable to respond in instructionally superior ways. In a study of tennis instructors' perception (Woorons, 2001), novices identified a wide range of observations and were, overall, as detailed in their descriptions as experts. However, when pertaining to specific information relevant to instruction and student skill performance, the experts' were far more focused and saw significantly greater detail. For example, in observing a volleyball lesson, a novice might notice student dress, enjoyment levels, or student social activity. In contrast, the expert would focus on the quality of the skills being performed, the students' understanding of the concepts taught, and the practice opportunities available to each student. Thus, the perception of experts is sharply focused on the pertinent details of teaching and learning, and extraneous events that do not bear on learning or instruction are filtered out.

Draw Inferences from Observations. A second characteristic of expert perception is the ability to make inferences from observed in-class events (Owens, 2006). This ability allows experts to anticipate the likelihood of future events. Expert instructors make inferences regarding athleticism, current motor skill levels, and quality of technique, and they are therefore able to speculate on which drills and activities are likely to interest students and improve their performance (Woorons, 2001). Their extensive teaching experience and broad knowledge of students, subject, and instruction allow experts to monitor a class and infer which activities will likely meet with success for the students, and also determine when changing the activity will continue the momentum of the lesson. The lack of experience and knowledge inhibits those with less expertise from fully understanding what might or might not happen in the immediate future of a class (Carter et al., 1988).

Alerted by the Atypical. It is the unusual in-class occurrence that triggers the perceptual mechanisms of an expert teacher. The extensive experience accumulated by an expert brings with it a comfortable familiarity with the instructional setting. The expert finds the events typically unfolding in class to be commonplace. The class of an expert is largely orchestrated as a set of well rehearsed routines (Baker, Schempp, & Hardin, 1998) and anything out of the ordinary thus becomes immediately obvious to the expert. The atypical can range from a student's silent struggle to learn a soccer pass to an outstanding trap by another student in the same drill. When observing the same activity, the novice, not knowing it was atypical, simply overlooks its significance.

Teachers with less expertise normally need to consciously monitor a class for instructional and managerial reasons. Experts spend far less energy monitoring a lesson that is progressing normally because they are intimately familiar with the environment. In fact, experts often appear negligent in their observations of students engaged in practice activities. That is far from the case, however, because these teachers know the students are appropriately engaged, and they are simply letting students learn. They are, however, fully prepared for an unusual event to occur, which will guide them to their next course of action. When the unusual occurs, the expert instructor detects it, immediately makes sense of the situation, and responds instinctively (Livingston & Borko, 1989). In contrast, novices, with their limited knowledge and skill, often fail to comprehend the implications of unusual circumstances.

Analytically Critical. The final characteristic of experts' perception is their ability to critically analyze student skill performance as well as the quality of the instructional events unfolding before them. The perceptive eye of an expert is a critical eye. Because expert teachers believe their most important challenge is to improve student skill performance, experts observe students practicing or performing and compare the technique with a standard drawn from their knowledge of the subject and their past instructional experience. Experts diagnose instruction with precision and then construct and implement solutions for improvement (Bian & Schempp, 2004; Woorons, 2001).

When observing elementary children practicing the overhand throw, a novice might see 30 or 40 children who all appear "busy, happy, and good" (Placek, 1981). An expert, however, would critically focus on the students' technique. Stepping in opposition, proper release, eyes focused on the target, and other details required for skillful performance would all be screened in the eyes of an expert. In addition, organizational considerations in the learning environment—such as student wait time, level of appropriateness of the activity, and pacing of the instruction—would also come under the critical eye of the expert teacher.

Combining the four preceding characteristics provides an expert teacher with a perceptual capability that permits them to draw information from their observations and make insightful decisions that greatly affect student learning. The next section discusses how experts learned these skills and offers suggestions for developing and practicing them.

Learning to See Like an Expert

The skills that lead experts to superior performances are not an accident of birth. Rather, these skills are learned. In other words, teachers can increase their expertise by learning the skills of an expert. To do so requires two things: (1) knowledge of the skill, and (2) practicing that skill until mastered. Do not be deceived by the simplicity of that statement. Learning the skills of an expert requires extensive knowledge and years of deliberate practice. To begin, a teacher must commit to practicing and refining his or her perceptual skills. Making a commitment to the goal is the first step in learning to see like an expert.

Focusing on Relevant Events. Research on teaching expertise has consistently demonstrated that experts perceive more

detail pertaining to student learning and the instructional environment than do novices or less expert teachers (Carter et al., 1988; Livingston & Borko, 1989; Woorons, 2001). A good way for novices to see more relevant cues in their observations is to strive to increase their knowledge of both motor skill technique and the learning environment (Schempp, 2003). To do so, St. Pierre, Spencer, and Woorons (2000) found that practical teaching experience, interaction with other teachers, and participation in workshops were principal sources that intimately acquainted teachers with the in-depth level of knowledge required to recognize relevant events in a learning environment.

To assist them to see more expertly during in-class observations, teachers might use an observation checklist of technical principles for the skill being practiced by students. Rather than casual or unfocused observations of classrooms, teachers can focus on specific instructional features. Using this deliberate practice activity will speed a teacher's ability to identify such critical components of a lesson as class management tasks, student activity levels, teacher clarity, effectiveness of lesson transition signals, quality and quantity of teacher feedback, and the developmental appropriateness of practice activities for improving the motor skill performance of students.

Drawing Inferences from Observations. The instructional observations of novice teachers often focus on student skill performances. Those observations usually lead only to superficial, descriptive analyses. They see what is happening, but not why. The underlying reasons accounting for superior or inferior student performance are often lost on the novice teacher. Experts not only detect errors and successes, but are also able to explain them. Observing a poor contact in a swing, for example, experts can make inferences as to where in the swing the error occurred based on the spin of the ball, the sound of the bat or racquet, or recollection of the set-up. Further, they can observe the student during the swing and make inferences regarding the student's skill potential and likely success in a game and consequently suggest practice activities that will most likely speed up the student's learning.

One method for a novice to practice making inferences is to partner with someone with greater expertise, particularly a subject expert. Perhaps one teacher might have expertise in the sport of basketball, while a colleague has expertise in soccer. The teacher can ask the expert partner teacher to provide verbal reports during observations. Verbal reporting is a technique used by researchers to trace the cognitive patterns of an individual making decisions or judgments in a specific context (Ericsson & Simon, 1993). The technique requires the person to verbalize his or her thought process. It may be awkward at first, because verbalizing a thought takes considerably longer than only mentally processing a thought. In this practice, however, when the expert makes judgments, the novice can ask her or him to explain how that conclusion was reached. Then they can reverse the roles. The novice can describe to the expert what is seen,

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An expert teacher uses a multitude of clues—the initial stance, the movement, and even the sound of the bat—to evaluate a student's swing and give suitable feedback.

why it occurred, and what should be done to either correct or facilitate that action again. This deliberate practice activity can take place during team teaching, a student-teaching assignment, or when jointly observing a videotape of a lesson or student performance.

For more experienced teachers, an effective practice activity is to make observations during student practice and *consciously* attempt to draw inferences regarding student motor ability, the potential of current practice activities to efficiently increase skill, and the probable effect of the practice on game performance. By continually assessing the current situation for its potential to change the future, teachers will begin making inferences—and consequently decisions—like an expert. With enough deliberate practice, making inferences during observations will become a subconscious routine that will guide a teacher to more effective instruction.

Tuning into the Atypical. As teachers gain more experience and knowledge of the instructional environment, they will begin to increasingly rely on routines that allow them to teach with greater efficiency and effectiveness. One activity that should be practiced by all teachers is the development of effective routines, particularly routines for opening and closing lessons, moving students from one activity to the next, providing information, and engaging students in practice. It is in the student practice portion of the lesson where expert teachers are most attuned to students, for it is in observing practice activities that teachers can detect the level of understanding and mastery of the subject matter by the students. Ultimately, the quality of one's teaching is measured by the level of student learning.

Directing the teacher's attention on students during

Novice instructors in the Ladies Professional Golf Association use a 13-point observational checklist to learn how to judge the mechanics of a golf swing.

practice may be one avenue for initiating the development of sensitivity to the atypical. As teachers observe students practicing, what strikes the teacher as typical or atypical in the students' performance? What causes the atypical and what are potentially appropriate responses? Teachers will need patience as they are learning to see—which means they will not immediately understand what they see. With deliberate practice, teachers will make better sense of instructional situations and become adept at finding potential in the unusual.

Because cognitive patterns are triggered by idiosyncrasies for experts, less expert teachers should undertake some error-detection training. Since experts' cognition was activated by irregularities in the motor skill, teachers might construct a list of common technical errors to look for while observing a motor skill performance. Reviewing performances, either live or taped, and then identifying errors is sound training to develop perceptual skills.

For teachers with several years of experience, becoming tuned to the atypical should begin with the routines around which the class and instruction are organized. It is in the routines where the atypical becomes most noticeable, because routines, by definition, mean that certain things are supposed to happen consistently in certain ways. Teachers should pay particular attention to students during skill practice routines, because detecting the problems that students encounter during this portion of the class allows teachers to respond in ways that make the largest difference in student learning.

Developing a Critical Eye. When observing a class or a skill performance, the knowledge and experience of experts allow them to see great detail and make connections in what they see. More important, the detail is sharply focused on critical aspects of the instructional events or student skill performance (Bian & Schempp, 2004; Woorons, 2001). Thus, their analytic abilities provide them with information from which they make informed and judicious decisions leading to superior student learning.

The development of a critical eye is well within the abilities of most teachers. As recommended by Knudson (2000), defining the critical features of the motor skill(s) of interest will increase the consistency of the qualitative analysis of a movement. Knudson suggested that defining the critical features would help teachers understand and more accurately perceive the fundamentals of the motion. Critical analysis may be more accurate if teachers

> get an overall impression of critical features before attempting to analyze discrete body positions that are difficult to perceive in fast movements... It is important that physical educators be aware of the critical features of various movements and develop a preferred strategy for observing them. (Knudson, 2000, p. 21)

Developing a critical eye should begin in the teacher education program and continue throughout the teacher's career. The Ladies Professional Golf Association (2005), for example, uses an "observation checklist of full swing principles." The checklist incorporates 13 principles: (1) hold, (2) aim/alignment, (3) set up, (4) connection, (5) swing plane (shaft), (6) width of arc, (7) levers, (8) length of arc, (9) position, (10) swing center, (11) timing, (12) release, and (13) dynamic balance. Novice instructors undergo training by using this checklist while observing selected performances of the golf swing. The use of instructional technology, including the study of motor skills on video using the slow-motion feature, is a great asset in improving instructors' movement analysis.

As Dodds (1994) noted, motor skill diagnosis is a primary concern for physical educators. It is, therefore, imperative that teachers understand the critical features of the skills they teach and can detect those features in students' practice or performance. Practicing critical analysis of a skill can take place whenever a physical educator is observing skill performances—in class, during a sport event, in another teacher's class, or even at recess. Similarly, practicing a critical eye for the effectiveness of instruction can be undertaken in one's own class, while observing a student teacher, in another teacher's class, or when viewing a recording of an outstanding teacher.

Summary

Experts acquire and develop their teaching skills largely through experience, education, and deliberate practice. With each day in the classroom, teachers increase their experience, and through reading, coursework, attendence at conferences and workshops, or reflection, teachers can increase their knowledge. But to elevate one's instructional expertise, practicing critical teaching skills is essential. To improve in sport, one must continually practice sport skills. It is no different in teaching. To improve in teaching, teachers must deliberately practice their teaching skills. Understanding how expert teachers see, and then practicing those skills

is your key to seeing like an expert. Try it and see what you have been missing.

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~~told their times and allowed to cool down and stretch while supporting and cheering on their classmates. Water should be kept on hand and made available to students as needed.~~

~~Using Adventure Racing CORE~~

~~I took up adventure racing a few years ago because I was looking for a new challenge and for a way to make my workouts more interesting. Not only did I find what I was looking for, but I found an exciting new activity to try with the students at my school. The students and staff have liked it enough that we have replaced our old cross-country unit with an adventure racing unit. It seems that adventure racing has many benefits and can fit into the physical education curriculum in many different ways. It can be used to replace weekly runs or cardio-fitness units; it can be used during a sports unit, incorporating sport-specific skills into stations; and it can be a unit of its own or be part of a cooperative-games unit.~~

~~No matter how you use Adventure Racing CORE in your class, have fun with it. Be creative with the obstacles that your students have to overcome, challenge them physically and mentally before they can continue with the race. Ask them questions that will take some time to answer, so that other teams have a chance to catch up. Keep it interesting and challenging. In the world of adventure racing, it is not always the fastest teams that win or even finish the race. It is the teams that work together. This is something that you will see as you watch your class participate in their first adventure race.~~

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